CLAIMS

We Claim:

1. An interface between an automation host and a plurality of tools used to perform a processing step, the interface comprising:

a single communications and process behavioral connection interface to the automation host; and,

a plurality of virtual host interfaces, each virtual host interface from the plurality of virtual host interfaces providing a communications and process behavioral interface to one of the tools in the plurality of tools;

wherein the automation host can control and coordinate operation of all tools in the plurality of tools via the single communications and process behavioral connection interface.

2. An interface as in claim 1 wherein a number of virtual host interfaces is variable depending upon a number of tools in the plurality of tools.

3. An interface as in claim 1 wherein the plurality of virtual host interfaces implement different communications and process behavioral interface for different tools from the plurality of tools.

4. An interface as in claim 1 wherein the single communications and process behavioral connection interface makes the plurality of tools appear to the automation host as a single tool.

5. An interface as in claim 1 additionally comprising a state machine scenario determinator that aggregates process state models for the plurality of tools into a single process state model.

6. An interface as in claim 1 additionally comprising a state machine scenario determinator that aggregates control state models for the plurality of tools into a control process state model.

7. An interface as in claim 1 additionally comprising a state machine scenario determinator that aggregates port state models for the plurality of tools into a single port state model.

8. An interface as in claim 1 wherein a process variables set and variable identification numbers of tools from the plurality of tools are aggregated into a single process variable set and variable identification number range for the plurality of tools.

9. An interface as in claim 1 additionally comprising a host concentrator that aggregates communication message sets of individual tools from the plurality of tools into a single communications message set for the plurality of tools.

10. An interface in 1 wherein each virtual host interface from the plurality of virtual host interfaces is compliant with the Semiconductor Equipment Manufacturers Institute (SEMI) generic equipment model

(GEM) interface requirements.

11. An interface in 1 wherein the single communications and process behavioral connection interface to the automation host is compliant with the Semiconductor Equipment Manufacturers Institute (SEMI) generic equipment model (GEM) interface requirements.

12. A method for connecting an automation host to a plurality of tools used to perform a processing step, the method comprising the following steps:

(a) providing a separate communications and process behavioral interface to each tool in the plurality of tools; and,

(b) providing a single communications and process behavioral connection interface to the automation host, including the following substep:

(b.1) allowing the automation host to control and coordinate operation of all tools in the plurality of tools via the single communications and process behavioral connection interface.

13. A method as in claim 12, wherein in step (a) a number of virtual host interfaces is variable depending upon a number of tools in the plurality of tools.

14. A method as in claim 12, wherein in step (a) the plurality of virtual host interfaces implement different communications and process behavioral interface for different tools from the plurality of tools.

15. A method as in claim 12, whereinin step (b) the single communications and process behavioral connection interface makes the plurality of tools appear to the automation host as a single tool.

16. A method as in claim 12, additionally comprising the following step:

(c) aggregating process state models for the plurality of tools into a single process state model.

17. A method as in claim 12, additionally comprising the following step:

(c) aggregating control state models for the plurality of tools into a single control state model.

18. A method as in claim 12, additionally comprising the following step:

(c) aggregating port state models for the plurality of tools into a single port state model.

19. A method as in claim 12, additionally comprising the following step:

(c) aggregating a process variables set and variable identification numbers of tools from the plurality of tools into a single process variable set and variable identification number range for the plurality of tools.

20. A method as in claim 12, additionally comprising the following step:

(c) aggregating communication message sets of individual tools from the plurality of tools into a single communications message set for the plurality of tools.

21. A method in 12 wherein in step (a) each separate communications and process behavioral interface is compliant with the Semiconductor Equipment Manufacturers Institute (SEMI) generic equipment model (GEM) interface requirements.

22. A method in 12 wherein in step (b) the single communications and process behavioral connection interface to the automation host is compliant with the Semiconductor Equipment Manufacturers Institute (SEMI) generic equipment model (GEM) interface requirements.